

Abstract of the Invention

Methods and apparatus for maximizing speech intelligibility use psycho-acoustic variables of a model of speech perception to control the determination of optimal frequency-band specific gain adjustments. Speech signals (or other audio input) whose intelligibility is to be improved are characterized by parameters which are applied to the model. These include measurements or estimates of speech intensity level, average noise spectrum of the incoming audio signal, and/or the current frequency-gain characteristic of the hearing compensation device. Characterizations of listeners based on hearing test results, for example, may also be applied to the model. Frequency-band specific gain adjustments generated by use of the model can be used for hearing aids, assistive listening devices, telephones, cellular telephones, or other speech delivery systems, personal music delivery systems, public-address systems, sound systems, speech generating systems, or other devices or mediums which project, transfer or assist in the detection or recognition of speech.

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